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NOTES ON GEOGRAPHIC DISTRIBUTION

# Second record of *Leporinus tigrinus* Borodin, 1929 (Characiformes: Anostomidae) in the Upper Paraná River basin, Brazil

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**ABSTRACT:** Herein we report the second record for *Leporinus tigrinus* in the Upper Paraná River basin, based on two specimens collected during field studies at Sucuriú River, Mato Grosso do Sul State and two specimens from Claro River, Goiás State. These records extend the species' distribution in approximately 500 km southwards from the first record in Corumbá dam area, Goiás State. Moreover, we discuss whether the species is native in the Upper Paraná River basin.

*Leporinus* Spix, 1829 is the most speciose genus of Anostomidae, with approximately 90 valid species (Garavello and Britski 2003). The last comprehensive review of *Leporinus* Agassiz was an unpublished thesis manuscript by Júlio César Garavello (unpublished data) who established species groups mainly based on color pattern and additionally on morphological traits. One of these groups is characterized by the presence of transverse dark bars on the body, occurring in Brazil (states of Amazonas and Pará), Suriname, British Guiana and Venezuela. The transverse dark bars group is composed of the following species: *L. affinis* Günter, 1864; *L. desmotes* Fowler, 1914; *L. fasciatus* (Bloch, 1794); *L. jamesi* Garman, 1929; *L. latofasciatus* Steindachner, 1910; *L. octofasciatus* Steindachner, 1915; *L. pellegrini* Steindachner, 1910; *L. tigrinus* Borodin, 1929; *L. trifasciatus* Steindachner, 1876 and *L. yophorus* Eigenmann, 1922.

In a recent survey performed at Sucuriú River, Upper Paraná River basin, two specimens with the aforementioned color pattern were captured. After analyzing the material, it was found that the species in question is *Leporinus tigrinus* (Figure 1) described from the type-locality "Goyaz" by Borodin (1929), eventhough Garavello and Britski (2003) had restricted the distribution to the Araguaia/Tocantins basins. However, this species had already been registered from the Upper Paraná River basin, in the region of the Corumbá dam by Pavanelli *et al.* (2007), but it is important to point out that this record is based on the presence of only one juvenile specimen captured in approximately five years of surveys performed by the Núcleo de Pesquisas em Limnologia, Ictiologia e Aquicultura (Nupélia). Although the Upper Paraná River basin is considered the most sampled area for freshwater fish fauna in Brazil (Agostinho *et al.* 2007), this species has not been registered again until now. However, other two additional species were found in the fish collection of the Nupélia, both from Claro River, a tributary to Paranaíba River, Goiás State, approximately 390 km away from the Corumbá Reservoir region. Langeani *et al.* (2007) considered *L. tigrinus* as a native species to the Upper Paraná River basin, but without any justification, probably using the information from Lima (2004) on the type-locality of the material collected in Thayer Expedition, wherein the holotype of *L. tigrinus* was captured. Nevertheless, Britski and Garavello (2007) had cited the distribution of *L. tigrinus* only for the Tocantins River basin, which includes the Araguaia River basin. Thereby, the scope of this study was to extend the current

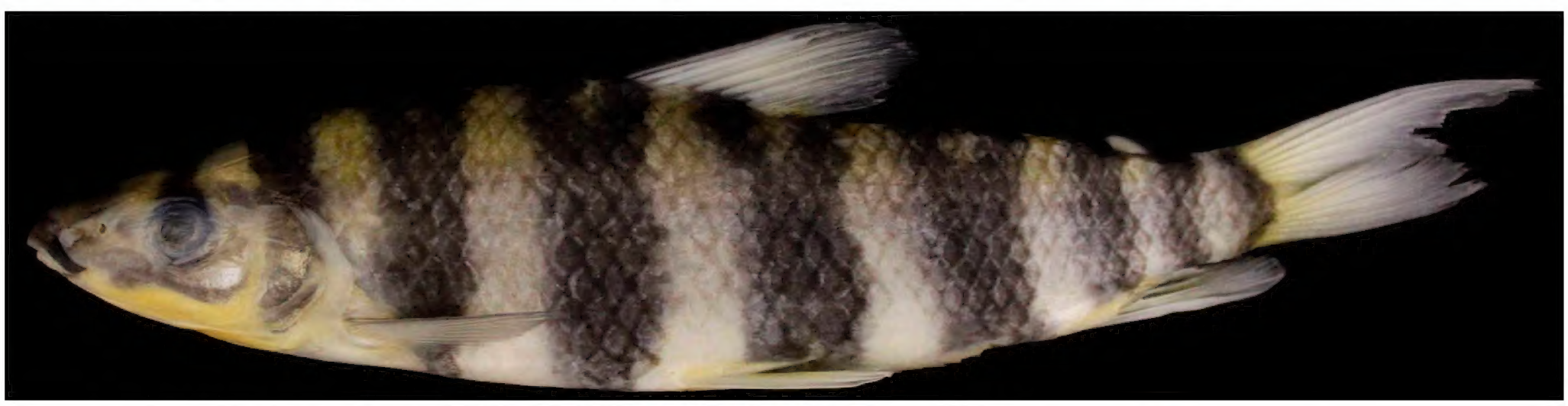

**FIGURE 1.** Specimen of *Leporinus tigrinus*, NUP 14407, 180.6 mm SL, collected in the Sucuriú River.

geographical distribution of this species, obtained through these new records.

The two specimens of *Leporinus tigrinus* were collected in the Sucuriú River (19°03'02" S, 52°58'47" W), Upper Paraná River basin, Mato Grosso do Sul State, with permission of IBAMA (Instituto Brasileiro do Meio Ambiente e dos Recursos Naturais Renováveis – nº 14028-1), and hosted in Coleção Ictiológica do Nupélia [NUP 14407, 2, 140.7-180.6 mm standard length (SL)]. The two specimens from Claro River (19°07'59" S, 50°39'56" W and 19°02'33" S, 50°40'10" W), Goiás State, were collected with permission of the Agência Goiana de Meio Ambiente – #40/2006, and are also hosted in Coleção Ictiológica do Nupélia [NUP 8874, 1, 270.0 mm SL; NUP 8875, 1, 140.0 mm SL]. These registers are available at: http://peixe.nupelia.uem.br. The species identification was performed through the available data in Garavello's revision, and was posteriorly confirmed by José Birindelli, an expert in Anostomidae. A map with the records of *L. tigrinus* in the Upper Paraná River basin was provided (Figure 2).

*Leporinus tigrinus* has been described from Tocantins and Araguaia rivers basin (Garavello and Britski 2003). Monteiro *et al.* (2009) mentioned that the occurrence of *L. tigrinus* is common in area of the Peixe Angical dam, Tocantins River basin. However, Langeani *et al.* (2007) and Pavanelli *et al.* (2007) have already registered the species for the Upper Paraná River basin, in Corumbá River, Goiás State. Despite this available record, many survey efforts in the Upper Paraná River basin have never resulted in new captures of this species. Furthermore, the known record is based on one juvenile specimen (86 mm SL). These new records presented herein, represents the southernmost occurrence for *L. tigrinus*.

Fish introductions of both native and exotic species are common in Brazil and according to Agostinho *et. al.* (2005) this species introduction may result in large impacts for the biodiversity of aquatic ecosystems. Nevertheless, it is not possible to confirm that *L. tigrinus* has been introduced into the Upper Paraná River basin. Despite of that, the local fishermen from the Sucuriú River region mentioned that this species has started to be spotted only since 2009 and now represents one of the main species destined to the feeding of local population due to its high abundance and easy capture. One of the authors (LFCT) witnessed the capture of dozens individuals in that region. Additionally, Froehlich *et al.* (2006) performed the species inventory of the Aporé-Sucuriú complex, in Goiás and Mato Grosso do Sul states, and have not registered *L. tigrinus* for the region which reinforces the possibility of the non-native occurrence of this species in the Upper Paraná River basin.

It is noteworthy that in this region, *L. tigrinus* co-occurs with a congener of the same species group, *L. octofasciatus* and several other congeners, *L. amblyrhynchus*, *L. elongatus*, *L. friderici*, *L. macrocephalus* and *L. obtusidens*. The species is clearly distinguished from its congeners from the mentioned region, with the exception of *L. octofasciatus*, by the presence of transversal black bars along the flanks (*versus* rounded blotches or stripes), differing from *L. octofasciatus* by the presence of 10 or more transversal black bars along the flanks (*versus* maximum eight) and by the bright yellow color pattern of the body and fins (*versus* reddish). The effects of the species introduction to these habitats are still unknown, but considering that *L. tigrinus* is morphologically very similar to some of the aforementioned congeners, ecological niche overlap may occur. Hence this fact highlights the importance of studies involving these species in this region.

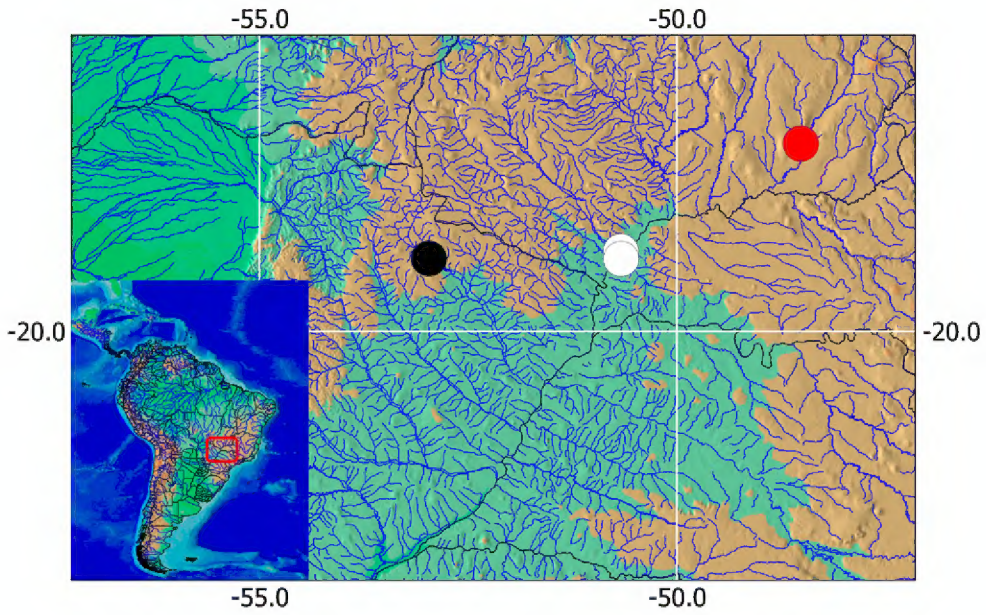


**Figure 2.** Map with localities of *Leporinus tigrinus* in the upper Paraná River basin. The black circle represents the record in the Sucuriú River, the white circles represent the records in the Claro River and the red circle represents the record in the region of Corumbá dam.

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**Literature Cited**

Agostinho, A.A., S.M. Thomaz and L.G. Gomes. 2005. Conservação da biodiversidade em águas continentais do Brasil. *Megadiversidade* 1(1): 70-78.

Agostinho, A.A., L.C. Gomes, and F.M. Pelicice. 2007. *Ecologia e manejo de recursos pesqueiros em Reservatórios do Brasil*. Maringá: Eduem. 501 p.

Borodin, N.A. 1929. Notes on some species and subspecies of the genus *Leporinus* Spix. *Memoirs of the Museum of Comparative Zoology* 50(3): 269-290.

Britski, H.A. and J.C. Garavello. 2007. Família Anostomidae; p. 23-27 *In* P.A. Buckup, N.A. Menezes and M.S. Ghazzi (ed.). *Catálogo das espécies de peixes de água doce do Brasil*. Rio de Janeiro: Museu Nacional.

Garavello, J.C. and H.A Britski. 2003. Family Anostomidae; p. 71-84 *In* R.E. Reis, S.O. Kullander and C.F. Ferraris Jr. (ed.). *Check List of Freshwater Fishes of South and Central America*. Porto Alegre: Edipucrs.

Froehlich, O., M.J.A.Vilela, M.R. Cavallaro and L.M. Cordeiro. 2006. Inventário da Ictiofauna do Complexo Aporé-Sucuriú: p.89-102 *In* T.C.S. Pagotto and P.R. Souza (ed.). *Biodivesidade do Complexo Aporé-Sucuriú: Subsídios à Conservação e Manejo do Bioma Cerrado.* Volume I. Campo Grande: Edufms.

Langeani, F., R.M. Corrêa e Castro, O.T. Oyakawa, O.A. Shibatta, C.S. Pavanelli and L. Casatti. 2007. Diversidade da ictiofauna do alto Rio Paraná: composição atual e perspectivas futuras. *Biota Neotropica* 7(3): 181-197.

Lima, F.C.T. 2004. *Brycon gouldingi*, a new species from the Tocantins drainage, Brazil (Ostariophysi: Characiformes: Characidae), with a key to the species in the basin. *Ichthyological Exploration of Freshwaters* 15(3): 279-287.

Monteiro, A.S., A.H.M. Oliveira, F.M. Pelicice and R.F. Oliveira. 2009. Alterações na disponibilidade de recursos alimentares e na dieta das principais espécies de peixes; p. 77-86 *In* C.S. Agostinho, F.M. Pelicice and E.E. Marques (ed.). *Reservatório de Peixe angical: bases ecológicas para o manejo da ictiofauna*. Volume I. São Carlos: Rima.

Pavanelli, C.S., W.J. da Graça, C.H. Zawadzki, H.A. Britski, H.A. Vidotti, G.S. Avelino and S. Verissimo. 2007. Fishes from the Corumbá Reservior, Paranaíba River drainage, upper Paraná River basin, State of Goiás, Brazil. *Check List: journal of species lists and distribution* 3(1): 58-64.

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